

REMARKS

The Office Action of July 28, 2006 and the Advisory Action of November 11, 2006 have been studied in detail along with the references applied and cited by the Examiner. In response, selected claims have been amended (claims 1, 3-7, 9, 11-13, 32-35, and 64-68), other claims canceled (14, 16-31, 36-37, 41-63 and 69), and new claim 70 added. The pending claims should be read in conjunction with the accompanying arguments in support of patentability. Further examination and reconsideration of the application as amended are respectfully requested.

THE OFFICE ACTION

Claims 1, 3-7, 9, 11-14, 32-40 and 64-68 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 4, 6, 7, 9, 12, 14, 32, 34, 36, 64, 66, 68 and 69 were rejected under 35 U.S.C. §103(a) as being unpatentable over Gerwien et al. (DE 10061709) in view of Euler (US 4364615).

Claims 38-40 were rejected under 35 U.S.C. §103(a) as being unpatentable over Gerwien et al. (DE 10061709) in view of Euler (US 4364615) as applied to claim 32 above, and further in view of Perrow (US 6390925).

Claim 11 was rejected under 35 U.S.C. §103(a) as being unpatentable over Gerwien et al. (DE 10061709) in view of Euler (US 4364615) as applied to claim 9 above, and further in view of Draving (US 2275058).

Claims 5, 35 and 67 were rejected under 35 U.S.C. §103(a) as being unpatentable over Gerwien et al. (DE 10061709) in view of Euler (US 4364615) as applied to claims 1 and 32 above, and further in view of McCarrick et al. (US 5713692).

Claims 3, 13, 33, 37 and 65 were rejected under 35 U.S.C. §103(a) as being unpatentable over Gerwien et al. (DE 10061709) in view of Euler (US 4364615) as applied to claims 1, 13, 32, and 37 above, and further in view of either Bross (US 2975667) or Turbant et al. (FR 2821906).

REJECTIONS UNDER 35 U.S.C. §112

The Examiner rejected claims 1, 3-7, 9, 11-14, 32-40 and 64-68 under 35 U.S.C. §112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant has amended independent claims 1, 9, 32 and 64 to include structure and to provide objective criteria to determine permanent plastic deformation of the ring. Applicant submits that the remaining dependent claims, dependent on one of the above referenced independent claims, are definite.

REJECTIONS UNDER 35 U.S.C. §103(a)

The Examiner rejected claims 1, 4, 6, 7, 9, 12, 14, 32, 34, 36, 64, 66, 68 and 69 under 35 U.S.C. §103(a) as being unpatentable over Gerwien et al. (DE 10061709) in view of Euler (US 4364615). These two references are cited by the Examiner as the two common references and are used to reject the independent claims. Additionally, these two references are used in combination with other references to reject all the other remaining claims.

Gerwien et al. describes a fastening device for a bearing of a spindle wherein the spring characteristic of the spring nut element required to hold and to adjust the bearing of the spindle is based on the shape and/or the elastic deformability of the spring nut element. The spring nut element fastened to the spindle produces a predetermined elastic force, so that the bearing of the spindle can be adjusted without play. According to the invention, tabs are provided to lock the inner ring-shaped disk section of the spring nut element to the spindle. These tabs are bent elastically to engage them in the thread of the spindle, and the resulting elastic force keeps them locked in position, so that the spring nut element cannot work itself loose. Further, as shown in Figure 2, the outer ring-shaped disk section (2) and the inner ring-shaped disk section (3) form a predetermined angle with each other. This angle can be changed elastically by the application of an external force.

The locking ring of Gerwien et al. is designed to be screwed onto a thread and is elastically deformable. Contradistinctively, the engagement zone of the closed locking ring according to the enclosed independent claims is not elastically, but permanently plastically

deformed into an angle toward the axis of the locking ring. Such a permanent plastic deformation is not possible with the ring of Gerwien et al., because the ring of Gerwien et al. is designed to maintain elasticity also in the installed state.

The Examiner next cites Euler to show the use of a closed outer edge. However, similar to Gerwien et al., Euler describes a retaining ring (30) including a cone-shaped, resilient rim (32) which defines a Belleville type spring. "The invention as claimed is intended to avoid the shortcomings of prior retaining rings by providing a retaining ring having a cones-shaped resilient rim. A plurality of resilient teeth extends radially from the rim" (refer to column 1, lines 37-40, and claims 1-3). Euler describes the advantages of its retaining ring as providing a substantially continuous circumferential contact with the shaft or housing and with the bearing; "the Belleville-type spring defined by the resilient rim of the retaining ring provides an inherently high spring rate" (column 1, lines 51-56).

Combining Gerwien et al. with Euler, and with any other of the cited references, would not result in a locking ring wherein said locking ring includes an outer closed circumferentially continuous edge zone which slants at a first an angle relative to a plane that is normal to towards the axis of said locking ring in a state prior to installation and slants at a second angle to said plane in an installed state and a radially inner circumferentially interrupted engagement zone which slants at a first an angle relative to said plane that is normal to towards the axis of said locking ring in the state prior to installation and slants at a second angle to said plane in the installed state; and, said first angle of said outer closed edge zone being substantially the same as said first angle of said radially inner circumferentially interrupted engagement zone in the state prior to installation and said second angle of said outer closed edge zone being different from said second angle of said radially inner circumferentially interrupted engagement zone in the installed state.

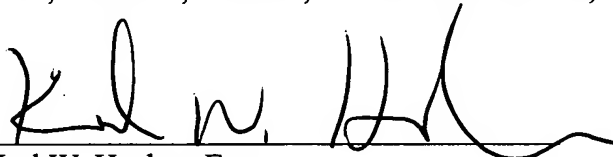
Independent claims 1, 9, 32, 64, and 70 all recite wherein in the installed state the radially inner zone is permanently plastically deformed. This feature is not anticipated nor made obvious by Gerwien et al. or Euler either singly or in combination.

Further, independent claims 9, 32 and 64 recite said locking ring having a first diameter in a state prior to installation and a second diameter in an installed state, said first diameter is different from said second diameter wherein, in the installed state, said radially inner zone is axially and radially permanently plastically deformed and thereby adjusts to said locking groove. The remaining

dependent claims add further elements that distinguish from the cited references. Thus, independent claims 1, 9, 32, and 64, and all claims dependent therefrom, are allowable over this record art. Applicants accordingly request reconsideration and allowance thereof.

As such, Gerwien et al. and Euler do not anticipate nor make obvious, either singly or in combination, Applicant's claims as described above. Applicant's attorney can be reached at the telephone number below if any further information is needed.

Respectfully submitted,
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